

WHAT IS CLAIMED IS:

1. An optical pick-up apparatus comprising:

a light source for emitting laser light in two wavebands;

a light-receiving element for receiving laser light which is emitted from the light source and is reflected by an optical recording medium; and

a grating having polarization characteristics between the light source and the optical recording medium by which the laser light emitted from the light source and being incident is transmitted without diffraction when a polarization direction for the laser light is equal to a predetermined first polarization direction and also by which the laser light emitted from the light source and being incident is diffracted when a polarization direction for the laser light is equal to a predetermined second polarization direction,

the optical pick-up apparatus performing at least one of processes for reading information of the optical recording medium and recording information on the optical recording medium by irradiating the optical recording medium by the laser light emitted from the light source on the optical recording medium, and

the polarization directions of the laser lights in the two wavebands being orthogonal with each other on a

position on which the laser light is incident on the diffraction grating.

2. The optical pick-up apparatus of claim 1, wherein the light source emits the first and second polarization directional laser lights which are parallel to each other, and a half wavelength plate is arranged between the diffraction grating and the light source so as not to have an effect on a polarization direction for the second polarization directional laser light and so as to change a polarization direction for the first polarization directional laser light.

3. The optical pick-up apparatus of claim 1, further comprising a first optical assembly, including,

a first optical element, disposed between the light source and the optical recording medium, provided with a hologram for diffracting incident light on a first surface portion and spectrally splitting the incident light to a plurality of lights and provided with the diffraction grating on a second surface portion, and

a light source unit having the light source and the light-receiving element.

4. The optical pick-up apparatus of claim 3, wherein the

hologram of the first optical element is a polarizing hologram having polarization characteristics by which the laser light emitted from the light source and being incident on the hologram is not diffracted and is transmitted.

5. The optical pick-up apparatus of claim 1, further comprising a second optical assembly, including,

a second optical element, disposed between the light source and the optical recording medium, provided with a hologram for diffracting incident light on a first surface portion and spectrally splitting the incident light to a plurality of lights and provided with the diffraction grating on a second surface portion, and

a light source unit having the light source and the light-receiving element.

6. A semiconductor laser apparatus comprising :

a light source for emitting laser light in a plurality of wavebands and installed so that polarization directions of a plurality of laser lights emitted therefrom can be parallel to each other;

an optical axis conversion mirror for changing a traveling direction of laser light emitted from the light source and provided with a half wavelength plate for

changing a polarization direction for laser light in one of wavebands; and

a light-receiving element for receiving reflected light of laser light which is emitted from the light source and is transmitted in one direction.

7. The semiconductor laser apparatus of claim 6, wherein the half wavelength plate is a birefringent crystal thin plate.

8. The semiconductor laser apparatus of claim 6, wherein the half wavelength plate is an anisotropic resin film.

9. The semiconductor laser apparatus of claim 6, wherein the light source and the light-receiving element are mounted on a resin base provided with a lead.

10. The semiconductor laser apparatus of claim 6, wherein the light source and the light-receiving element are mounted on a metal pedestal, a lead kept under a condition electrically insulated from the pedestal is attached to the pedestal, and the lead is arranged so as to extend in a direction parallel to a direction of an optical axis converted by the optical axis conversion mirror.

11. The semiconductor laser apparatus of claim 6, wherein the light source and the light-receiving element are mounted on a silicon substrate.

12. The semiconductor laser apparatus of claim 11, wherein the optical axis conversion mirror is formed by processing the silicon substrate.

13. The semiconductor laser apparatus of claim 6, further comprising a polarization diffraction grating having polarization characteristics by which diffraction efficiency for laser light in a predetermined first polarization direction is greater than diffraction efficiency for laser light in a second polarization direction orthogonal to the first polarization direction.

14. The semiconductor laser apparatus of claim 6, further comprising a hologram for diffracting reflected light of laser light transmitted in one direction into a direction of the light-receiving element,

the hologram having polarization characteristics by which diffraction efficiency for laser light in a predetermined first polarization direction is greater than diffraction efficiency for laser light in a second polarization direction orthogonal to the first polarization

direction.